FLIGHT
The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World
Founder and Editor: STANLEY SPOONER
A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 832. (No. 49, Vol. XVI.) DECEMBER 4, 1924 [Weekly, Price 6d. Post free, 7d.

Flight
The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828.
Annual Subscription Rates, Post Free:
United Kingdom .. 30s. 4d. Abroad .. .. 33s. 0d.*
These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates
* *European subscriptions must be remitted in British currency*

CONTENTS

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list :—

1924

Dec. 4 .... Colonel F. Searle, C.B.E., D.S.O. (Managing Director, Imperial Airways, Ltd.): "The Maintenance of Commercial Aircraft," before R.Ae.S.

Dec. 5–21 Paris Aero Show.

Dec. 12 .... Commander J. C. Hunsaker (C.C.), U.S.N., Assistant Naval Attaché to the American Embassy, London: "Notes on Seaplane Design," before I.Ae.E.

Dec. 18 .... Mr. A. R. Watson Watt (Superintendent, Radio Research Board Station): "Recent Studies on Radiotelegraphic Atmospherics," before R.Ae.S.

1925

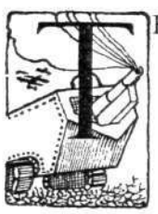
Jan. 9 .... Mr. R. J. Parrott, Hons. Member: "The History and Evolution of the Avro Training Machine," before I.Ae.E.

Jan. 23 ... Lieut. N. A. Olechnovitch, Member: "A Few Experiments with Shock-Absorbing Hulls for Flying Boats," before I.Ae.E.

Feb. 5 .... Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., A.F.R.Ae.S.: "The Operation of Flying Boats in the Mediterranean," before R.Ae.S.

Feb. 6 .... Professor E. G. Coker, D.Sc., F.R.S.: "Photo-Elastic Methods of Measuring Stress," before I.Ae.E.

EDITORIAL COMMENT.



THE Ninth International Aero Exhibition, or 9e *Exposition Internationale de l'Aéronautique*, which opens tomorrow, December 5, to remain open until December 21, promises to be like previous Paris Aero Shows—international mainly in name. Great Britain will be represented, it is true, but not on a scale in accordance with our importance in the aviation matters of the world. Holland will be represented by Mynheer Fokker's Company, and it is to be hoped that the treatment meted out to the famous Dutchman this year will not be a repetition of that accorded him on a previous occasion of painful memory. There seems to be a possibility that Czechoslovakia may be represented, and probably Italy will also have a stand in the Grand Palais, but all these fail to combine to make the exhibition international in the true sense of the word. Germany will certainly not be represented, nor will many other nations which have produced aircraft or engines worthy of being shown side by side with those of France and Great Britain.

Paris

There are, of course, various reasons for this lack of participation in the Paris Aero Shows, but, as far as Great Britain is concerned, at any rate, the main obstacle is the somewhat peculiar system by which the French authorities allocate stands. It is somewhat difficult for outsiders to follow the details of the method, but put briefly it seems to work somewhat as follows: The French constructors ballot for the main stands, and if any space is left over after the ballot, this is allocated to the representatives of foreign countries. Usually, however, French participation in the Show has been such that all the good stands have been taken up, and foreign exhibitors have had to be content with odd corners under galleries or similar unsuitable positions. Under the circumstances, therefore, it is scarcely to be wondered at if foreign firms have hesitated to incur the expense which a show in Paris entails. The system is not at all in accordance with British ideas of fair dealing, and past experience has shown that very often such British firms as have decided to take their chance on

the allocation of stands have been unfortunate and have been tucked away in a corner completely overshadowed, or at any rate, more or less belittled by the more imposing stands in their immediate neighbourhood. Unless and until British aircraft firms are assured of an equal chance with representatives of other nations in the allocation of stands, British participation individually is likely to be limited or, in the form of concerted action by the Society of British Aircraft Constructors, is likely to be withheld. Much the same doubtless applies to other foreign firms, and so long as the present system is in force the shows in the Grand Palais will remain "international" mainly in name. It is quite certain that if an Aero Exhibition were to be held in London next year, foreign exhibitors would be given an equal chance with British in the matter of stands, and if some British firm were unfortunate in the ballot no song would be made about it, any more than if they suffered in a French show in like manner

From a technical point of view the Ninth International Aero Exhibition in Paris promises to be rather more interesting than the majority of previous ones. For this the fact that two years have elapsed since the last Paris Show is mainly responsible. Constructors have had time to develop new types, whereas in the past it has frequently been the case that either last year's types, slightly modernised, have been exhibited, or experimental types have been rushed through for the Show and have still had to undergo many modifications before becoming practical propositions. This year there seems to be reason to believe that the Paris Aero Show will really have something worth while to present.

Reference is made elsewhere to the small but very important British section of the exhibition. It is greatly to be regretted that but one British aeroplane will be on view, no matter how excellent and representative that example of the British aircraft-builder's art. It may be argued that there is not usually very much business done at a Paris show by foreign exhibitors, and that consequently the absence of the greater part of the industry will not matter greatly. It does, in our opinion, matter a good deal, as representatives of practically all the nations that possess or intend to possess an air force will undoubtedly visit the Grand Palais, and it is, therefore, an excellent opportunity of showing the latest types of British aircraft. It has been said that at the Paris Aero Show one always meets everybody who is anybody in the aviation world, and from that point of view it is important for British firms to be represented. If it has not been found possible, or desirable, to exhibit in Paris, firms would still be well advised to send representatives to the exhibition, as old friends will be met and new ones made during a stay of a week or so, quite apart from the necessity of sending designers in order to keep an eye on the progress made since the last show. We therefore trust that the British aircraft industry will be well in evidence, if not by actual exhibits, at any rate by members of their technical and commercial staffs.

In the matter of British aero engines we have good cause to be satisfied, although one of our oldest and most important aero-engine firms will not be represented, more is the pity. The Armstrong-Siddeley and Bristol firms will have specimens of their various types of radial air-cooled engines on view—types, by the way, which are justly regarded as representing the high-water mark of aero-engine design in this particular class. It can be said without fear of contradiction that in the matter of high-power air-cooled aero engines Britain leads the world, whatever may be thought is our position in other branches of aeronautical engineering. France has already recognised this by obtaining the rights to construct the famous Bristol "Jupiter" engines, French examples of which have, as recorded in FLIGHT from time to time, passed some extraordinarily searching tests. In this country the Armstrong-Siddeley "Jaguar" has become equally popular, and is being used extensively in the Royal Air Force.

The water-cooled type of British aero engine will not be exhibited as a separate unit, but it is satisfactory to note that a Napier "Lion" will be fitted in the machine to be shown by Fokker, so that once more visitors to the Grand Palais will have an opportunity to see the famous "Lion." On the stand of the Aircraft Disposal Company will be three types of aero-engine: a Siddeley "Puma" of the type used with such great success by Cobham in his famous flights, and one of which is at present taking him and Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, to India. A Wolseley "Viper" will also be shown, thus affording a comparison between the original Hispano-Suiza engine and its British version.

Finally, the A.D.C. will show a B.R.2 rotary, and as France is still using the rotary type of engine to a considerable extent, doubtless the B.R.2 will receive a good deal of attention. Altogether the British section will undoubtedly make up by quality what it lacks in quantity, and so may be considered, on the whole, as being highly satisfactory.

"FLIGHT" AT THE PARIS AERO SHOW

Arrangements have been made for FLIGHT to be on sale in the Grand Palais during the French Aero Exhibition. Our stand will be in the gallery, at the Champs Elysees end of the building, and visitors wishing to leave messages relating to Editorial or Advertising matters should hand them to the Attendant.

FLIGHT

THE PARIS AERO SHOW 1924

BRITAIN AT THE PARIS AERO SHOW

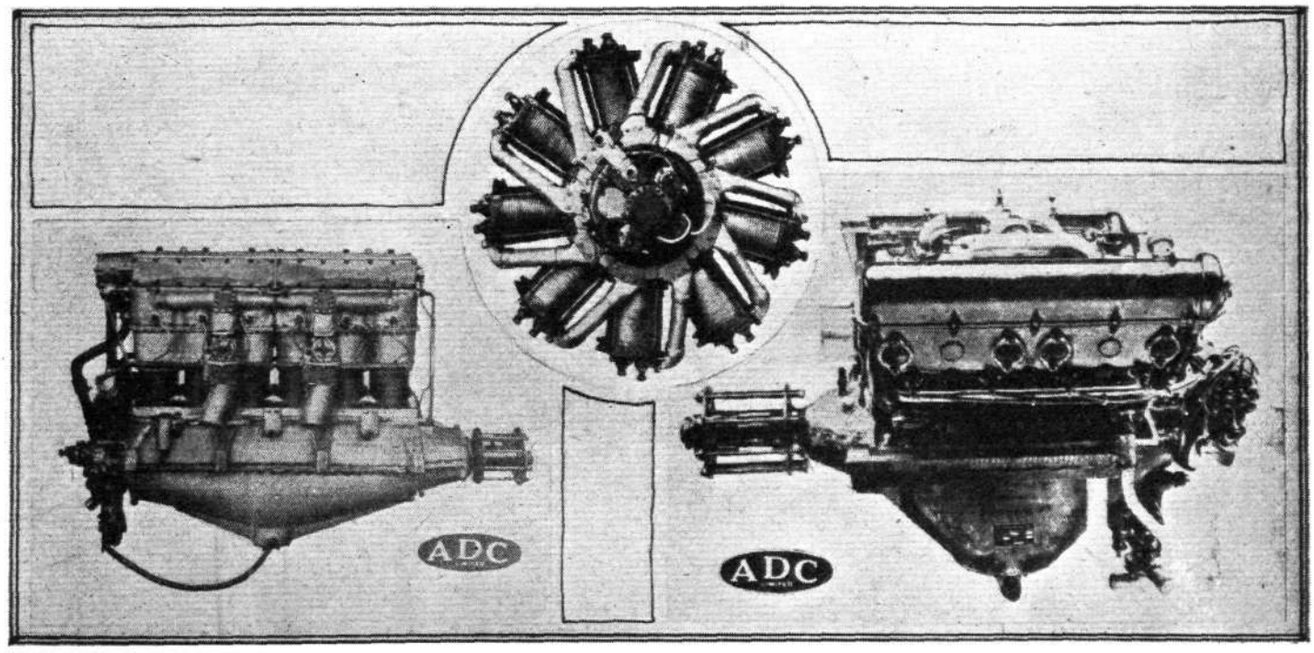
ONCE more the centre of interest, as far as aviation is concerned, is the Grand Palais in the Champs Elysées, where tomorrow, December 5, the doors will open on the Ninth International Aero Exhibition. As on previous occasions, Britain will be represented, although not, perhaps, to the extent and on a scale commensurate with the standing of the British Aircraft Industry. Nevertheless, the British section will, we feel sure, well repay a visit to the stands, for on one of them will be found a really up-to-date, high-performance British single-seater, while a tour of inspection will reveal the fact that nearly every type of British aero engine is represented on the three stands to which this country's exhibit is confined. We could have wished, naturally, that more British aircraft were shown, but as far as aero engines are concerned, there is considerable cause for satisfaction. Our modern radial air-cooled engines are the envy of the world, and there is, therefore, every reason to expect that representatives of European and other powers will make a point of examining in detail the Bristol and Armstrong-Siddeley radials, which will be displayed. On the Aircraft Disposal Company's stand, visitors will be able to inspect the famous Siddeley "Puma," the B.R.2 rotary, and the Wolseley "Viper." The famous Napier "Lion," although not shown as a separate exhibit, will be fitted in the Fokker biplane of the N.V. Nederlandsche Vliegtuigenfabriek, the combination being one that has attained a very considerable measure of success. A visit to the three British stands will, therefore, be very well worth while, and visitors should not be led into the error of thinking that because the British section is on a modest scale, it is of no interest. British aero engines have established a reputation for reliability second to none, which explains the reason for the choice of British engines by so many foreign powers and companies.

AIRCRAFT DISPOSAL CO., LTD., KINGSWAY, LONDON, AND CROYDON

THIS firm was formed shortly after the Armistice for the purpose of taking over enormous stocks of Government surplus aircraft, aero engines, and aero accessories and equipment. Sorting out the good from the bad was a colossal undertaking, and naturally took some time, but under the management of Major J. R. Grant matters eventually assumed a high degree of order, so that it was possible to deliver from stock, not only complete aeroplanes of certain well-known makers, but various types of aero engines and engine parts—to say nothing of innumerable accessories. Thanks to a rigorous system of inspection, every machine or engine that left the A.D.C. works at Waddon, Croydon, was not only "good as new," but in many cases certain modifications introduced by an able designing staff gave additional performance.

During its five or so years of existence the A.D.C. has supplied aircraft and engines to a very great number of different nations, with satisfactory results.

The A.D.C. have secured an important space at the Paris Aero Show (Stand No. 9 bis), and while they are not actually showing any aeroplanes, full details and specifications of these will be available. The A.D.C. exhibit will consist



THREE REPRESENTATIVE BRITISH AERO ENGINES AT THE PARIS AERO SHOW: The above well-known engines are exhibited by the Aircraft Disposal Co., who have a large stock of these engines, re-conditioned and in perfect order. On the left is the famous Armstrong-Siddeley "Puma," in the centre the 200 h.p. "B.R.2." rotary, and on the right the 210 h.p. Wolseley "Viper" water-cooled "V."

of aero engines, aero instruments, spares, aerial cameras, etc., etc. As regards the engines, these will comprise three very well-known and successful British types, namely, the 240 h.p. Armstrong-Siddeley " Puma," the 200 h.p. " B.R.2 " rotary, and the 210 h.p. Wolseley " Viper " water-cooled V (Hispano-Suiza type).

The following brief specifications of each of these three engines may be of interest :—

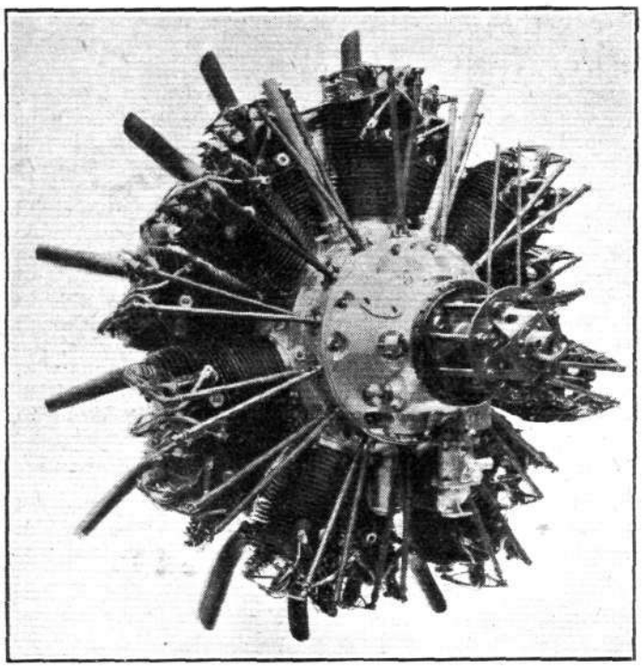
230 *h.p. Armstrong-Siddeley " Puma."*—Six-cylinder vertical water-cooled. Bore, 5·71 ins. (145 mm.) ; stroke, 7·48 ins. (190 mm.) ; compression ratio, 4·9 to 1 ; normal b.h.p., 246 at 1,400 r.p.m. ; maximum b.h.p. at 1,500 r.p.m. ; weight dry, 641 lbs. (290·3 kgs.) ; weight per h.p., 2·6 lbs. (1·17 kgs.) ; petrol consumption, 0·446 pint (0·252 litre) per h.p.-hour ; oil consumption, 0·038 pint (0·021 litre) per h.p.-hour ; direct drive.

200 *h.p. " B.R.2."*—Nine-cylinder rotary air-cooled radial. Bore, 5·51 ins. (140 mm.) ; stroke, 7·09 ins. (180 mm.) ; compression ratio, 5·26 to 1 ; normal b.h.p., 230 at 1,300 r.p.m. ; maximum b.h.p., 234 at 1,350 r.p.m. ; weight dry, 500 lbs. (226·5 kgs.) ; weight per h.p., 2·17 lbs. (0·983 kgs.) ; petrol consumption, 0·69 pint (0·391 litre) per h.p. hour ; oil consumption, 0·09 pint (0·051 litre) per h.p.-hour ; direct drive.

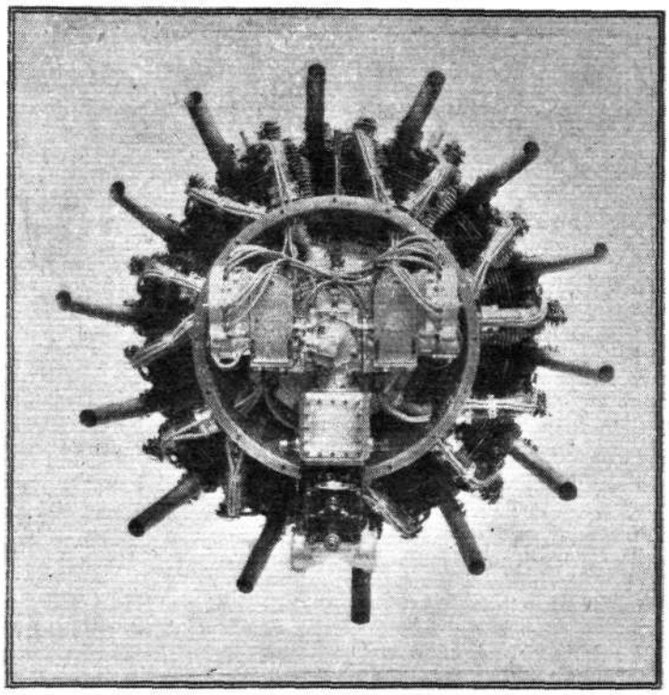
210 *h.p. Wolseley " Viper."*—Eight-cylinder water-cooled V. (90 deg.).—Bore, 4·72 ins. (120 mm.) ; stroke, 5·12 ins. (130 mm.) ; compression ratio, 5·3 to 1 ; normal b.h.p., 210 at 2,000 r.p.m. ; maximum b.h.p., 220 at 2,100 r.p.m. ; weight dry, 508 lbs. (230·2 kgs.) ; weight per h.p., 2·54 lbs. (1·15 kgs.) ; petrol consumption, 0·52 pint (0·294 litre) per h.p.-hour ; oil consumption, 0·028 pint (0·015 litre) per h.p.-hour ; direct drive.

ARMSTRONG-SIDDELEY MOTORS, LTD., COVENTRY

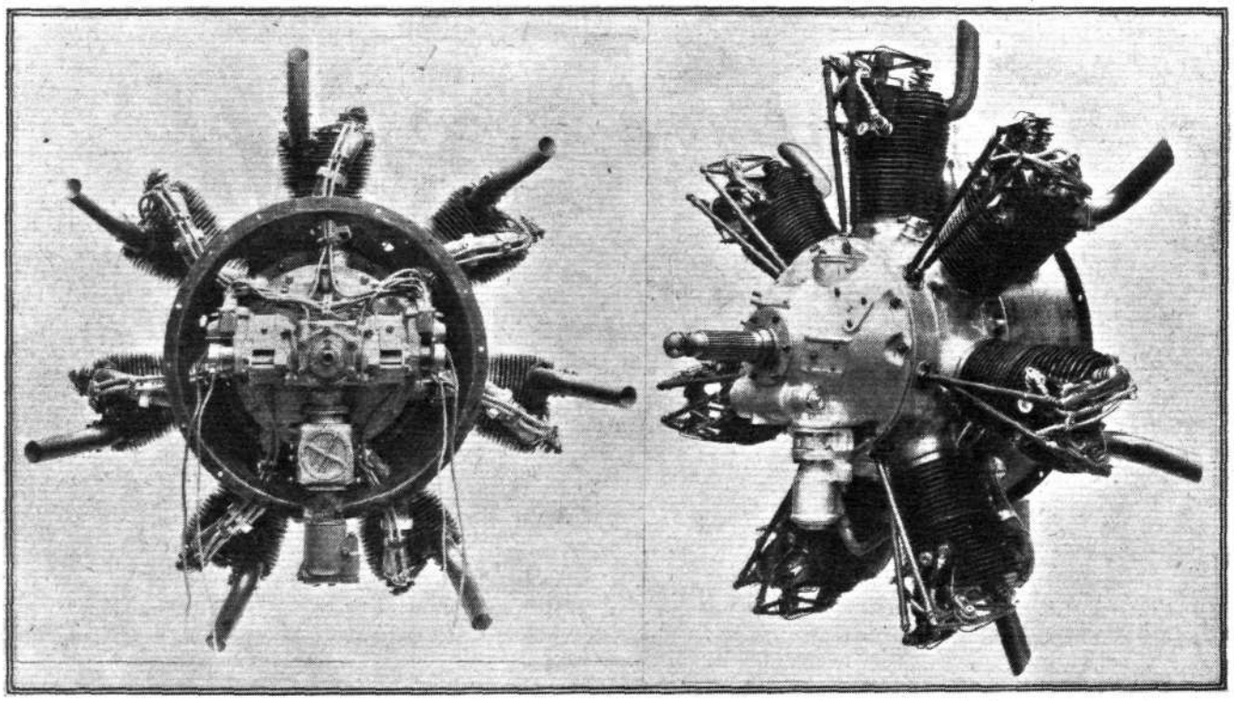
THIS firm, which is allied with Sir W. G. Armstrong, Whitworth and Co., Ltd., and is responsible for the aero-engine branch of this famous house, is exhibiting two of its products at this year's Paris Aero Show. These will be the successful Armstrong-Siddeley " Jaguar " and " Lynx " aero engines.



A SUCCESSFUL BRITISH AERO ENGINE AT THE PARIS SHOW : A front view of the Armstrong-Siddeley "Jaguar " radial air-cooled engine.



The rear end of the " Jaguar," showing magneto, carburettor and conical mounting plate.



ARMSTRONG-SIDDELEY " LYNX " AT PARIS : On the left a rear view of the engine, showing the conical mounting plate, and on the right a three-quarter front view.

Both these engines are of the radial air-cooled type, and each has given exceptionally good results in actual practice. The "Jaguar" has 14 cylinders arranged in two radial banks, the cylinders of one bank being staggered in relation to those of the other bank. It develops a b.h.p. of 385-425, the normal b.h.p. being 410 at 1,700 r.p.m. The cylinders have a bore of 5 ins. (127 mm.) and a stroke of 5·5 ins. (140 mm.). Inlet and exhaust valves, which are interchangeable, are mounted in the cylinder head and are operated by light and stiff rocker arms through push-rods from two cam rings (one for inlet and one for exhaust) located in the front portion of the crankcase and rotating at one-sixth engine speed in an opposite direction to that of the crankshaft. The mixture is supplied from a dual carburettor by way of a fan arrangement located in the rear portion of the crankcase and driven at engine speed.

The crankshaft is of the two-throw type with a common split-ring big end to which is connected the master connecting rod and the other six rods. The connecting rods (steel) are machined all over to ensure perfect balance. the master rods being of channel section and the others of circular section.

Pistons are aluminium alloy, and the cylinder barrels are of steel with aluminium alloy heads, while the crankcase, which is in three parts, carries a pressed-steel cone forming the engine bearer which is to be bolted to the plate attached to the nose of the aeroplane fuselage for that purpose.

The weight of the "Jaguar" dry is 775 lb. (345 kgs.), and the petrol consumption is 0·56 pint (0·298–0·312 litre) per b.h.p.-hour; the oil consumption is 0·03 pint (0·017 litre) per b.h.p.-hour. The overall diameter of the "Jaguar" is approximately 44 ins. (1,180 mm.) and the total length is 43 in. (1,080 mm.).

The Armstrong-Siddeley "Lynx" is a 7-cylinder engine, giving 185 b.h.p. at a normal engine speed of 1,620 r.p.m. The cylinders have a bore and stroke of 5 ins. (127 mm.) and 5·5 ins. (140 mm.) respectively. Most of the constructional features of the "Lynx"—cylinders, valve gear, connecting rods, etc.—are identical to those of the "Jaguar," differences occurring only where difference of type of engine calls for this. The crankshaft is, of course, of the single-throw type, but the common split-ring big-end arrangement is the same as that in the "Jaguar." As in the "Jaguar," the "Lynx" is provided with the conical steel mounting plate, bolted to the rear end of the crankcase.

The weight of the "Lynx" is 480 lb. (209 kgs.). The petrol and oil consumption per b.h.p.-hour are 0·56 pint (0·298–0·312 litre) and 0·03 pint (0·017 litre) respectively.

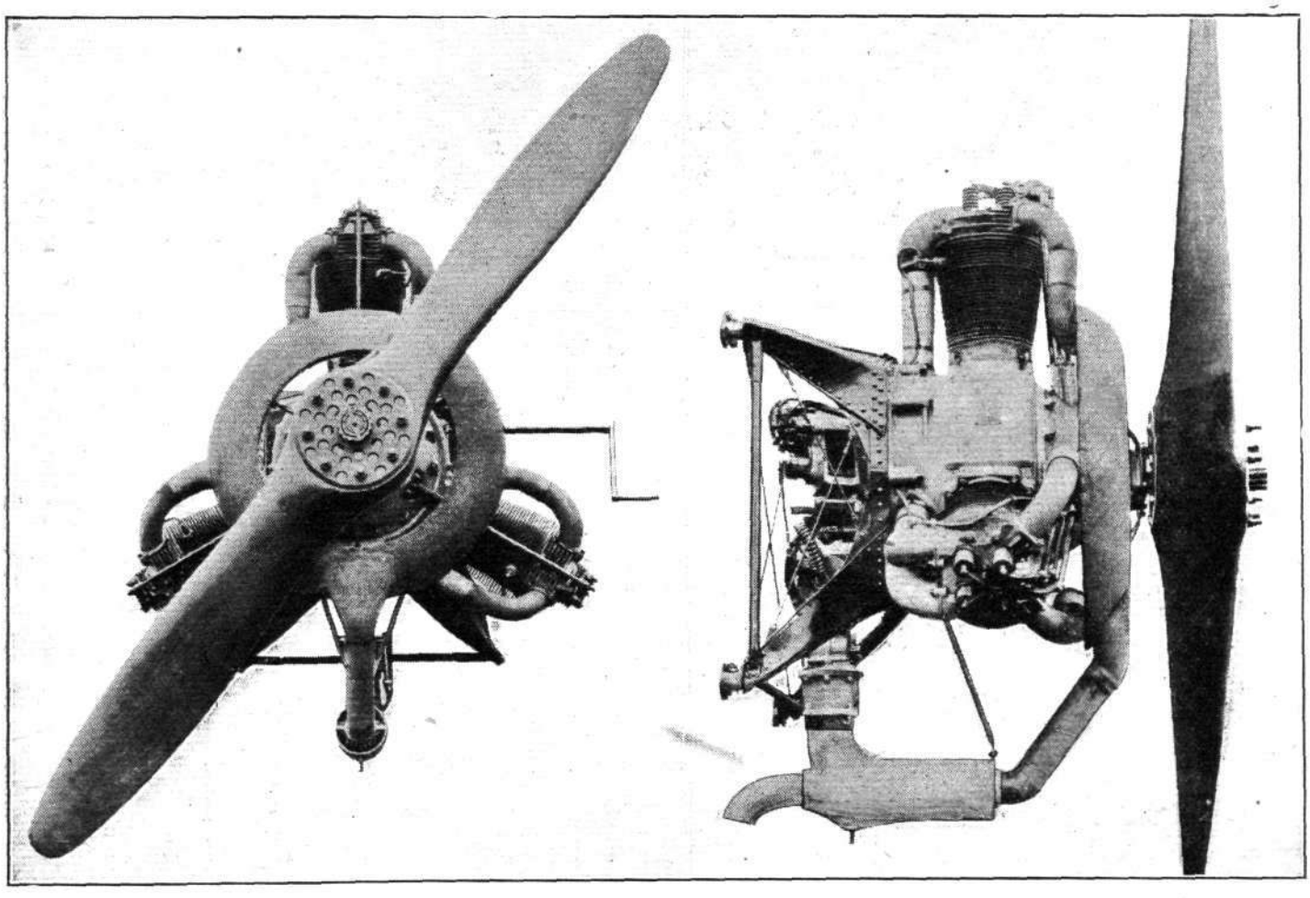
As previously stated, both the "Jaguar" and the "Lynx" have successfully passed their type tests, and both have given every satisfaction in practice.

THE BRISTOL AEROPLANE CO., LTD., FILTON, BRISTOL

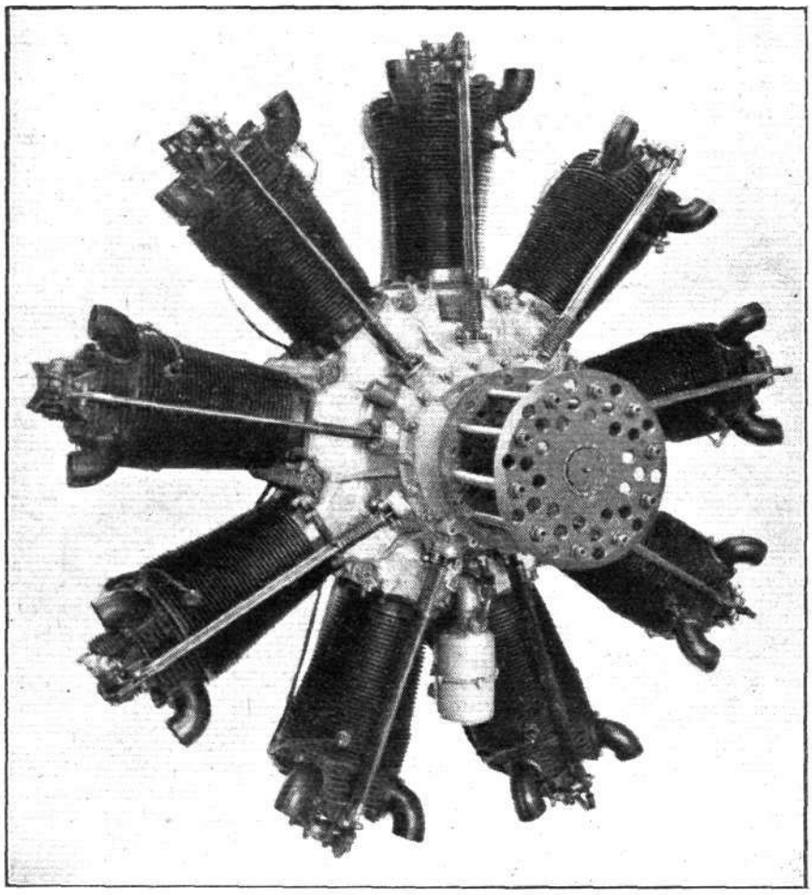
THE Bristol Aeroplane Co., although not showing any aeroplanes at this year's Paris Aero Show, will have a representative exhibit as regards aero engines. The entire Bristol family of this branch will be there, consisting of the Bristol "Jupiter," the Bristol "Lynx," the Bristol "Cherub," and the Bristol gas starter. The Bristol "Jupiter" is too well known to need any extensive introduction here, for it has not only given a good account of itself, both on the bench and in the air, in its native land, but in France as well. It is a nine-cylinder radial air-cooled engine, developing 400 h.p. at 1,575 r.p.m., which is the normal engine speed.

The "Jupiter" possesses many unusual and important features, the outstanding one of which—and this applies equally to the other two engines—is the extreme simplicity and cleanliness of the design. The external appearance of the engine, as may be seen from the accompanying illustration, presents a remarkable absence of "gadgets," external components having been reduced to a minimum. Another noteworthy feature of the "Jupiter" consists of the special spiral induction manifold, embodied within the crank-case, by means of which each of the three carburettors fitted supplies three cylinders, thereby giving an even and uniform distribution of mixture.

The cylinders have a bore and stroke of 5·75 ins. (146 mm.) and 7·5 ins. (190 mm.) respectively. A maximum horse-power of 425, at full throttle, is developed at a speed of 1,700 r.p.m. The weight of the engine comes out at 730 lbs. (332 kgs.), and the petrol and oil consumption per brake horse-power-hour are 0·594 pint (0·339 litre) and 0·049 pint (0·028 litre) respectively.



ONE MEMBER OF THE BRISTOL FAMILY AT THE PARIS SHOW: Front and side views of the 3-cylinder 100 h.p. "Lucifer."

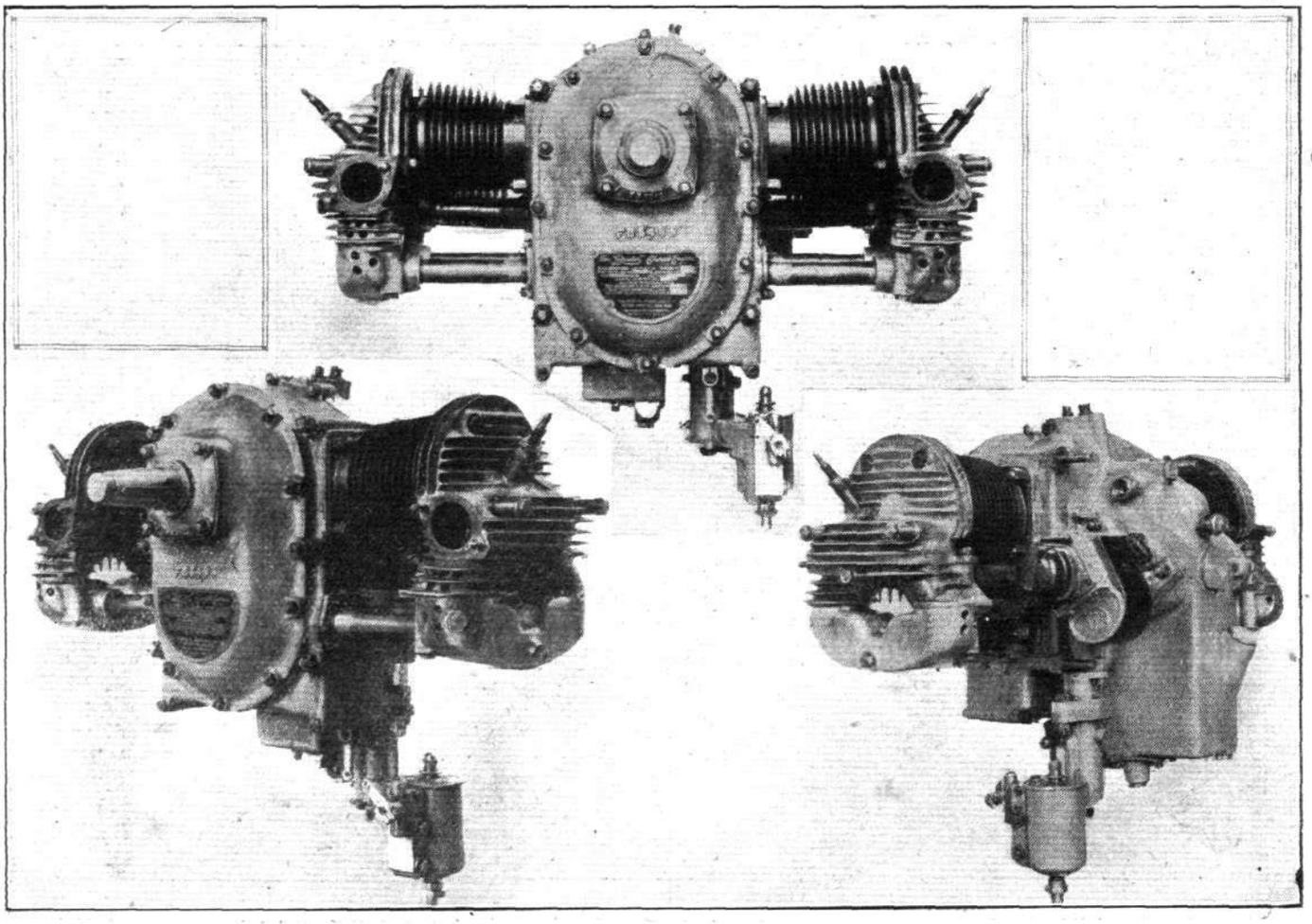


AT THE PARIS AERO SHOW: The 400 h.p. Bristol "Jupiter," a successful air-cooled radial aero engine which has done well in France as well as in its country of origin.

The Bristol "Lucifer" is a three-cylinder air-cooled radial, giving a normal 100 b.h.p. at 1,600 r.p.m. This engine, on account of its extreme simplicity and very small number of parts, is particularly suitable for school machines and medium-powered sporting machines. The cylinders, which are arranged in an inverted Y formation, have a bore of 5·75 ins. (146 mm.) and a stroke of 6·025 ins. (153 mm.). It has a compression ratio of 4·8 to 1, and the weight of the engine is 324 lbs. (147 kgs.), or 3·24 lbs. (1.47 kgs.) per brake horse-power. The petrol consumption is 0·61 pint (0·35 litre) per brake horse-power hour, and the oil consumption 0·036 pint (0·021 litre) per brake horse-power hour. An important feature of this engine—and also of the "Jupiter"—consists of a swivelling mounting, by means of which it is possible, on turning a crank handle, to swing the complete engine to one side of the fuselage, thereby rendering every part of the engine easily accessible.

The third and smallest member of the Bristol family, the "Cherub," is a flat twin, air-cooled engine, giving a maximum brake horse-power of 32·6 at 3,200 r.p.m. The "Cherub" is noteworthy for the fact that it is one of the few engines that has been specially designed for light 'plane work—for it is not a converted motor-cycle engine. It should be noted, also, that the "Cherub" has successfully passed its Air Ministry type test, and put up a very good performance during the two-seater light 'plane competitions held at Lympne last summer.

An important constructional feature of the "Cherub" is the operation of the valves. The latter are actuated, not by the usual push-rods and rockers, but by shafts rocking within enclosing tubes. Cams on the camshaft engage with fingers, which operate the rocking shafts, at the outer ends of which are the arms actuating the valves. The rocking shafts are "returned" by coil springs. The advantage



A BRITISH LIGHT 'PLANE ENGINE AT THE PARIS SHOW: Three views of the Bristol "Cherub" flat twin which can develop over 30 h.p.

of this arrangement is that when the cylinders warm up and expand there is no increased clearance between the rocking shafts and the valves. The camshaft is mounted below the crankshaft, ensuring thorough lubrication of the cams, etc.

The cylinders of the "Cherub," which have detachable heads of aluminium alloy, have a bore of 3·3 ins. (85 mm.) and a stroke of 3·7 ins. (96·5 mm.), giving a total capacity of 1,095 c.c. The weight of the engine is 81 lbs. (367 kgs.) and the petrol consumption is 0·625 pint (0·354 litre).

The Bristol "gas starter" is a simple, compact, and effective unit, by means of which all types of internal-combustion engines of six or more cylinders may easily be started up from the pilot's cockpit. It consists of a small single cylinder, air-cooled two-stroke engine, combined with which is a pumping cylinder. The latter draws a supply of petrol from the former's carburettor and pumps a mixture under pressure to the main engine cylinders *via* a disc valve distributor. The weight of this starter, without piping and distributor (which is on the main engine) is only 50 lbs. (22·65 kgs.).

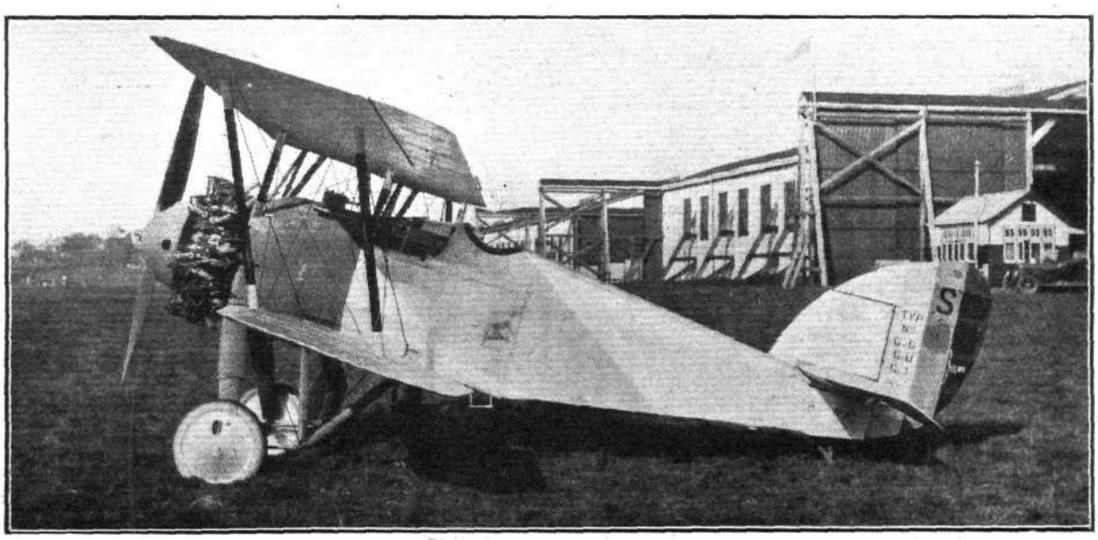
SIR W. G. ARMSTRONG-WHITWORTH AIRCRAFT, LTD., PARKSIDE, COVENTRY

THIS firm—the aircraft branch of the world-famous engineering house bearing the same name—will form a worthy representative of British aeroplane design and construction at this year's Paris Aero Show. While only one machine will be exhibited by this firm, the example to be shown—an A.-W. "Siddeley-Siskin 5"—consists of one of the most recent efforts of the company.

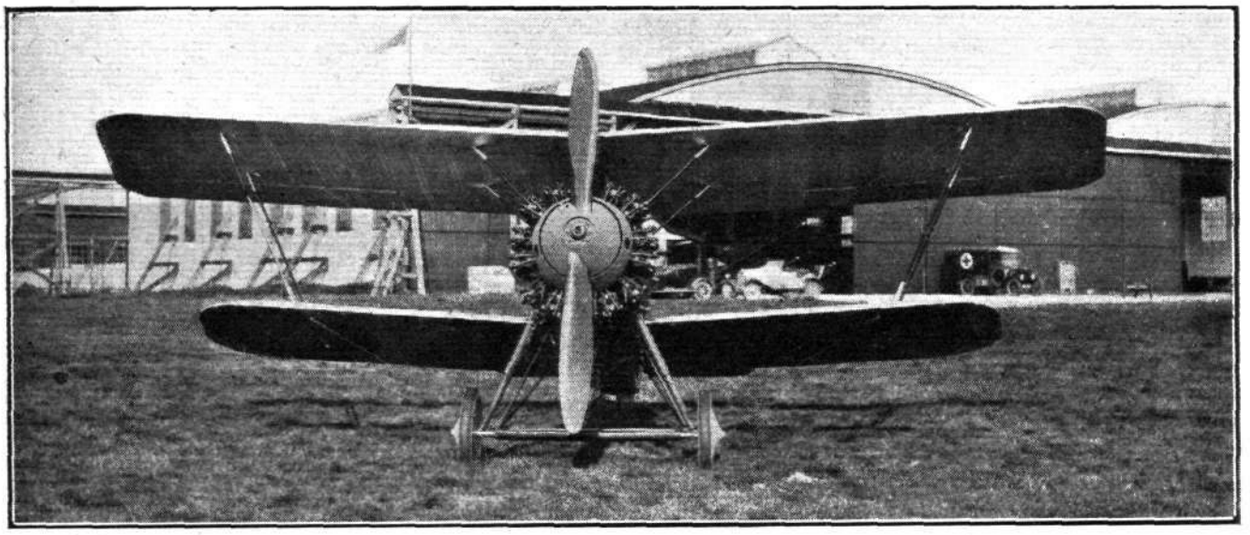
A BRITISH AEROPLANE AT THE PARIS AERO SHOW: A three-quarter front view of the Armstrong-Whitworth "Siskin 5"—a single-seater fighter fitted with an Armstrong-Siddeley "Jaguar."

The "Siskin 5" is a high-performance single-seater fighter tractor biplane, fitted with an Armstrong-Siddeley "Jaguar" radial air-cooled engine. In general design the "Siskin 5" is similar to the previous "Siskins," which have made names for themselves during the past few years, both in military work and in civil aviation—it was a "Siskin II" that won the 1923 King's Cup or Circuit of Great Britain Race. There are, however, many minor improvements and modifications to be found in the "Siskin 5," the result of practical experience under service conditions with the earlier models.

"Siskin 5" is constructed very largely of metal, and possesses several distinctive features. It is of comparatively short span (28 ft. 4 ins.), and the top plane is considerably larger, both as regards span and chord, than the lower one. The wing cellule is of the "one-and-a-half bay" type, there being one pair of sloping interplane struts near the wing tips on each side of the fuselage, and in addition a pair of "half-struts" extending from the top longerons of the fuselage up to the top plane, about one-third the distance between the centre of the top plane and the interplane strut attachments. Both top and bottom planes are in two sections, the lower sections being attached directly to the fuselage,



THE ARMSTRONG-WHITWORTH "SISKIN 5": A side view of the only British aeroplane exhibited at the Paris Aero Show.



Another view, front, of the Armstrong-Whitworth " Siskin 5."

while the inner ends of the top sections are attached to an inverted V cabane above the fuselage. Unbalanced ailerons are mounted on the top plane only, and both the upper and lower planes are set at a fairly pronounced dihedral angle.

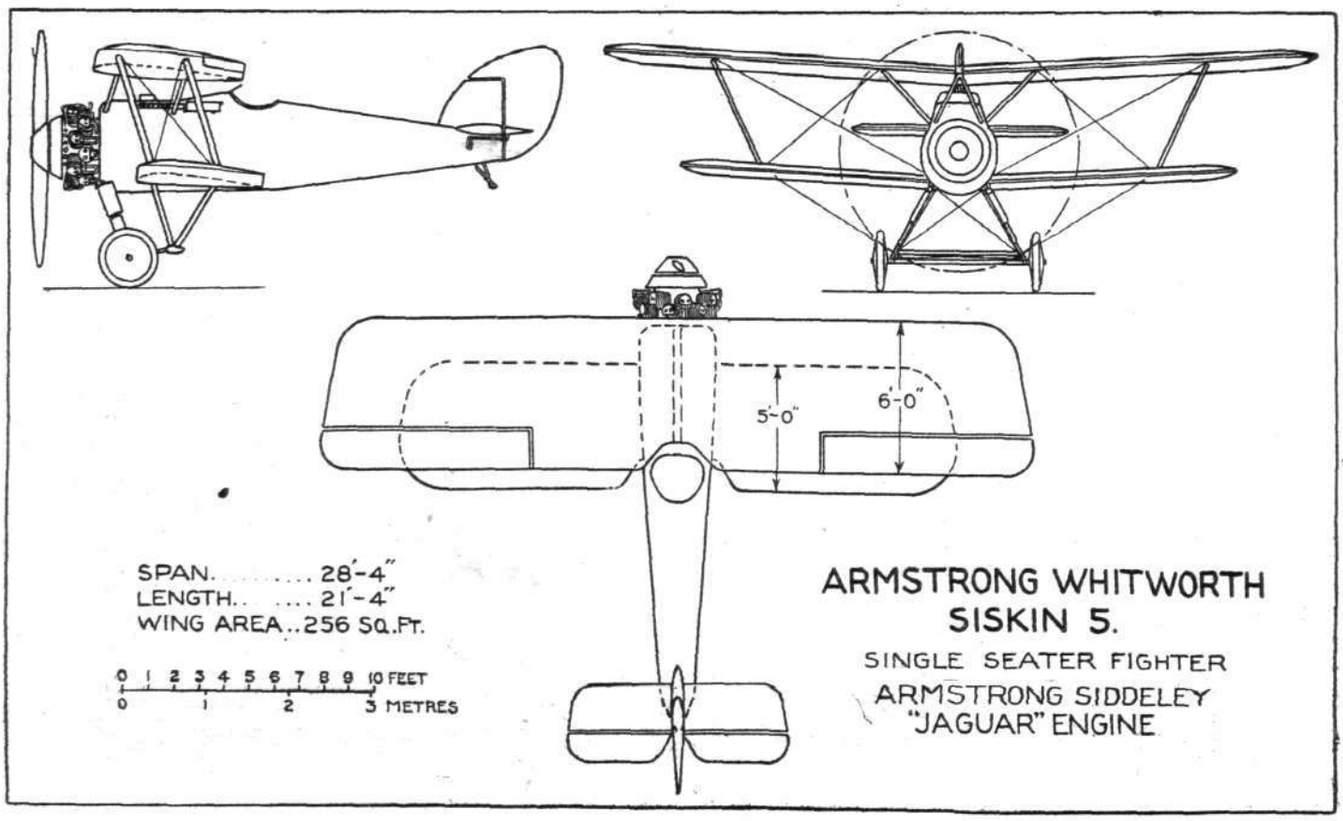
The fuselage, it will be noted, presents a good streamline form, while the pilot's cockpit is well situated as regards good all-round vision. The pilot's head comes only just a little distance below the trailing edge of the top plane, which is cut away slightly at this position. The pilot thus has unrestricted vision directly forward, with a minimum of " blind " area upwards, while the lower planes, being comparatively small, do not restrict the downward view to any great extent.

Large vertical tail surfaces, and an adjustable horizontal surface, are provided. The Siddeley " Jaguar " engine is supported in a special steel cone mounting on the nose of the fuselage. This mounting enables the engine to be removed from the machine with the greatest facility and quickness, and without interfering with the carburettor adjustments, etc.

Another noteworthy feature of the " Siskin " is the somewhat unusual Oleo undercarriage. This consists of a usual V-chassis attached to the fuselage beneath the wings, but the wheels are not attached directly to the V's. They are, instead, located some distance forward of the V-struts, to which they are hinged by radius arms from the apex of each V. The axle of the wheels is attached to two Oleo struts extending from the front end of the fuselage.

The main characteristics of the " Siskin 5 " are :—

Span (top)	28 ft. 4 ins. (8·625 m.).
Span (bottom)	22 ft. (6·705 m.).
Chord (top)	6 ft. (1·828 m.).
Chord (bottom)	5 ft. (1·524 m.).
Overall length	21 ft. 4 ins. (6·500 m.).
Height	9 ft. 4 ins. (2·834 m.).
Area of main planes	256 sq. ft. (23·782 mq.).
Weight fully loaded	2,450 lbs. (1,111·320 kgs.).
Maximum speed (full load) ..	155 m.p.h. (248 km.p.h.).
Speed at 10,000 ft. (3,048 m.).	147 m.p.h. (235·2 km.p.h.).
Speed at 15,000 ft. (4,572 m.).	140 m.p.h. (224 km.p.h.)
Climb to 5,000 ft. (1,524 m.). ..	2 mins. 40 secs.
Climb to 10,000 ft. (3,048 m.).	6 mins. 10 secs.
Climb to 15,000 ft. (4,572 m.).	11 mins. 30 secs.
Climb to 20,000 ft. (6,096 m.).	20 mins. 10 secs.
Service ceiling	25,000 ft. (7,620 m.).



AT THE PARIS AERO SHOW: General arrangement drawings of the Armstrong-Whitworth " Siskin 5."

FLIGHT

TESTING THE FLETTNER "ROTOR" IN ACTUAL FLIGHT

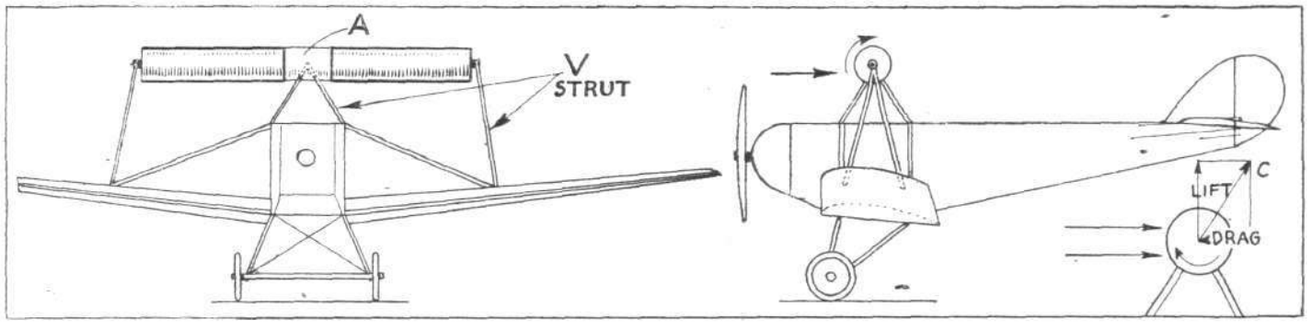
A Possible Field for the Light 'Plane

WITH reference to the article appearing in last week's issue of FLIGHT on the subject of the Flettner "Rotor Ship" and the possible application of the principles involved to aircraft work, the aircraft designer who sent us the initial communication (and who, for reasons of his own, desires to "hide his light under a bushel") has forwarded the accompanying sketches to show how the idea might be tested out in actual flight. "For an initial experiment," our correspondent writes, "it would be best to try only a small rotor and to drive it from the engine, in conjunction with a wing of sufficient size to enable a landing to be made if the rotor stopped." The diagrams are, we think, more or less self-explanatory. The rotor is in two halves, supported in the centre by the fixed portion "A" and at the outer ends by inverted V-struts rising from the wing spars. A machine of the low-wing monoplane type would seem to lend itself to the experiment,

From statements made and illustrations shown in Herr Flettner's paper it appears evident that the rotor has an action very similar to that of an aerofoil, as was surmised in FLIGHT last week. The rotation of the rotor, owing to surface friction, causes the air in contact with the cylinder to rotate with it, and over one portion of the rotor there is thus an increase in velocity, while over another there is a decrease.

These changes in velocity naturally result in corresponding changes in pressure, so that we get a portion where there is a small positive pressure, corresponding to the lower surface of an aerofoil, and a portion where the pressure is negative, corresponding to the upper surface of a wing section. As in the case of the aerofoil it was found that in the rotor the negative pressure is the more important of the two.

It is also of interest to note that end losses were considerable,



Suggested method of testing the Flettner rotor on a light 'plane. The presence of the usual wing should enable a landing to be made safely in case of stoppage of the rotor

particularly one in which the wing was braced by struts as in the Parnall "Pixies" or the de Havilland D.H. 53. Thus, we see here an opportunity to use the light 'plane for real research work, a sphere of usefulness to which we have repeatedly called attention. The experiment should cost relatively little, and if handled methodically and carefully should result in no very grave risk to the pilot. "Straights" would naturally be undertaken first, and the presence of the ordinary wing, with its ailerons, should ensure safety and controllability.

Since we published the article last week, certain details of the Flettner rotor have become known, the inventor having read a paper on the subject before the *Schiffbautechnische Gesellschaft*. From Herr Flettner's paper it appears that, as we suspected, there is a definite relationship between translational and rotational speed. This relationship seems to be somewhat unfortunate from the point of view of the application of rotors to aircraft, since experiments at Göttingen have indicated that the best efficiency is attained when the peripheral speed of the rotors is approximately 3½ to 4 times that of the translational speed. In rough-and-ready figures this seems to mean that, suppose the rotor were tested on a light aeroplane and that the rotor itself measured 10 ft. in length by 1 ft. diameter, at 30 m.p.h. the peripheral speed should, for good efficiency, be about four times that, or 120 m.p.h., or 176·6 ft./sec. This would correspond to a rotational speed of 56·2 r.p.s., or 3,370 r.p.m. It is thus quite obvious that for mechanical reasons a limit would soon be reached, and that the rotor does not appear very promising for fast machines. It is not, of course, known what power is required to drive the rotor, but if it be found that no very great power supply is necessary a windmill drive seems to be suggested. In larger machines probably a separate engine might be found to be the solution. At any rate, it is fairly evident that the source of power must be independent of the main engine, since otherwise engine failure would result in the stoppage of the rotors, with consequent loss of lift. One can also visualise the use of rotors as auxiliaries to the normal wing surfaces and used to give extra lift while taking off and alighting, although the problem of streamlining the rotors when not in use would present difficulties. The application to machines of the helicopter type is also indicated, although here the rotor system would suffer from the same drawback as the direct-lift airscrew type, *i.e.*, loss of lift in case of engine stoppage.

and that the circular plates on top of the rotors in the *Buckau* were intended to reduce these. Thus, it seems obvious that the rotors are subject to the same laws as aerofoils, and that aspect ratio has a similar effect.

As regards actual results, Herr Flettner states that with short cylinders the "lift coefficient" had an "absolute" value of 4 (corresponding to a value of 2 in British "absolute" units), but that this was increased to 9 (4·5 British) by fitting the end plates and reducing losses. Compared with the maximum lift coefficient obtainable with high-lift aerofoils (somewhere in the neighbourhood of 0·8), a lift coefficient of 4·5 is rather astonishing.

The wind-tunnel tests at Göttingen are stated to have been carried out with a cylinder 33 cms. (a little over 13 ins.) long and having a diameter of 7 cms. (2¾ ins.) *i.e.*, with an aspect ratio of 4·72. The end discs were of 14 cms. (5½ ins.) diameter. Doubtless rotors of higher aspect ratio would give still better results.

From curves given by Herr Flettner in his paper it appears that the lift coefficient of the rotor reaches its maximum value when the rotational speed is 3½ to 4 times the translational speed, and then remains at this value as long as this ratio is maintained. Curves showing the pressures on the rotors of the *Buckau* indicate that for the rotor speed employed the force on the towers reaches a maximum at a relative wind speed of about 15 m. per second, and that from then onwards the force remains practically constant. For ship work this is, of course, important, since a sudden gust would exert no extra pressure on the towers and so would not tend to heel the ship over further. In the case of aircraft, presumably the effect would be that once the maximum lift had been attained any further increase in air speed, if unaccompanied by an increase in rotor speed, would not give any extra lift. In other words, once the proper ratio had been reached the lift per square foot would remain constant at higher speeds.

It will be noted that certain assumptions made last week have not proved quite accurate, and that as a result the lift attainable at 30 m.p.h. (assuming a maximum lift coefficient of 4·5) would be 45 lbs./sq. ft., and not, as originally estimated, 95·8 lbs./sq. ft. Even so, however, the lift is sufficiently startling, and in spite of many difficulties in connection with the operation of the rotor, the subject seems to be one very well worth close study.

THE KING'S REGULATIONS AND AIR COUNCIL INSTRUCTIONS FOR THE ROYAL AIR FORCE

SIX years have passed since the War came to an end, and a new generation is rapidly growing up. Already many officers and airmen can be seen who do not wear medal ribbons—in fact, it is doubtful whether the possessors of medals are still a majority of the Royal Air Force. To these youngsters the force itself must appear almost a venerable body, for already it has occupied all their manhood's life and, in many cases, a good part of their boyhood too. To them it will come with something of a shock to realise that King's Regulations for the Royal Air Force have only just been published for the first time.

To the Sergeant-Majors of the force, on the other hand, this publication will doubtless give intense delight. We may picture them spending their winter evenings learning by heart the 894 pages and the 3,700 odd paragraphs which they contain, so as to be able to quote justification for all their actions, and to confound unwary and less erudite adjutants. The examiners who set papers for sundry air force examinations will also have a merry time picking out "teasers" from the bulky grey volume. We venture to suggest a sample :—Define and distinguish between the terms "airman," "aircraftman," and "aircrafthand." Every well-informed member of the general public ought to be able to answer that question ; but how many are really able to do so ?

The general public, of course, will not read "King's Regs.," but if any curious and adventurous person does open the book, he will not have to go far before finding his interest aroused. The very definitions have their piquancy. "Landplane" is a term which receives official sanction, and so is "Ship Plane." Oxford Dictionary, please note ! We also learn definitely from the same page that a seaplane is an aeroplane, a point which has been much in dispute hitherto. Turning on, we are surprised to learn that an Area is not a "formation," though a Wing is. We are left in doubt as to whether a Group is a "formation" or not. On the whole, the evidence is in favour of the presumption.

Another point on which a definite ruling seems desirable, and if it exists in this volume it has escaped a somewhat careful scrutiny, is the precise meaning of the terms "Air Officer" and "Air rank." They seem to refer to one and the same degree of seniority, and they both occur frequently throughout the volume. On the analogy of the naval "flag rank" one would suppose they indicated an officer not below the rank of Air Vice-Marshal. But Paragraph 348 says that an Air Aide de Camp (to the King) will be of the rank of Group Captain, and will vacate his appointment on promotion to air rank. Therefore, it seems that an Air Commodore must be an air officer.

An important matter of principle is laid down in Paragraph 375, which deals with promotion of officers. Different systems of working promotion have been tried in various services, and all have shown defects in certain circumstances. The British Army used (and for all we know, still does so) to work on regimental promotion by seniority up to the rank of Lieutenant-Colonel as vacancies occurred. The result was that in one regiment promotion was fast and in another slow, according to the whims of fortune. In the Indian Army promotion is on a time scale, and every officer knows the date on which he will get his rise. This system is excellent, and makes for general contentment in time of peace, but it broke down badly in the great War, when casualties were thick and yet the survivors could not get promotion as their fellows in the British service were getting it. The Royal Air Force has decided upon the system of promotion by selection after recommendation. For this system it is claimed that the good man is sure to rise and the indifferent officer to be left behind. The obvious defect of it is that it gives a loophole for favouritism, and that even a good officer cannot get promotion if his idiosyncrasies do not agree with those, possible even more idiosyncratic, of his immediate superior. In practice, it is bound to be the Squadron-Leaders who recommend officers for promotion or keep them back ; and it must be remembered that Squadron-Leaders are of necessity rather young men, lacking that experience of the world and of mankind which the Captain of a ship or the Lieutenant-Colonel of a regiment must have acquired. Moreover, it is inevitable that in the Royal Air Force the qualities of commanding men and judging character must receive rather less weight, and ability in dealing with machines and engines must receive rather more weight, than is the case in the Army or in the executive branch of the Navy. There is a distinct danger here, and it behoves Wing Commanders and Group Captains to scrutinise closely the recommendations of the Squadron Leaders. On the other hand, there is a good deal to be said for adopting this system of promotion in the Royal Air Force. It is not yet certain how long the "flying life" of the average pilot will be ; but compared with the other services the Air Force is the service of young men and of brilliant individuals. The brilliant young man ought to receive rapid promotion, and under this system he has a good chance of winning it. The remark about skill with a machine being more important than the power of leading men, is an argument which tells for this system as well as against it ; for the efficiency of the service depends somewhat less on the power of an officer to get the best out of his aircraftmen than upon his ability to keep his place in a formation ; and, therefore, less harm is done if a brilliant "stunt merchant," devoid of other qualities, receives promotion, than would be the case in the Army if promotion were usually given to officers who were merely crack revolver shots.

The chapter on language study is instructive. It summarises the present outlook of the air force, but it does not look ahead. The only languages the study of which is encouraged by the offer of rewards are French, German, Japanese and Arabic. An airman can only receive a reward for proficiency in Arabic. We rather think that it would have been wiser to specify the particular languages in some publication less permanent than King's Regulations. It may some day be necessary to add Italian and Spanish to the list, or—who knows ?—to omit Arabic.

Chapter IX, Section IV, deals with education, and is especially interesting. Space forbids a complete description of the system, but it may be said briefly that the principle adopted is to collect a number of really good men as education officers, post them to stations, and give them a free hand to do as much good work for officers, airmen and the children of both as the circumstances of each case permit. There is also a "Pool" of knowledge which can be drawn upon where necessary. The breadth of the conception, in dealing with a thorny problem, commands admiration. This, of course, is in addition to the education given to cadets and aircraft apprentices at Cranwell, Halton and Flower Down.

The regulations draw attention to a number of interesting facts not generally realised. A whole series of regulations deals with Maltese airman, the only class of airmen from the Empire for whom special provision is made. . . . It is pointed out that ex-airmen with special qualifications may become Yeoman of the Guard. . . . The issue of spectacles to airmen with defective sight is authorised, which seems to put the Air Force many gulfs away from the Army and Navy. . . . Packing cases may be loaned to married officers and airmen when moving from station to station. . . . Automatic pistols are issued free to officers for the period of their service—Army officers have to buy their own arms. . . . An excellent regulation enjoins that boys and other young airmen are to report immediately if their bed clothes appear to be damp. . . . *À propos* a recent indecorous discussion in certain daily papers, paragraph 763 lays it down that the C.O. of a station will be responsible that guards and sentries are reduced to the lowest possible numbers and that where possible he will arrange for guard and sentry duties to be performed by service police, or airmen acting as such. . . . Not every one knows that an airman can draw pay as a diver—a proviso which concerns the work of torpedo aircraft.

It is only natural that the regulations should be concerned mostly with land 'planes and secondarily with seaplanes. Airships and balloons only receive occasional mention. Incidentally some enthusiasts will be grieved to note that helicopters are not mentioned at all, not even among the definitions—nor are ornithopters ! But now that we are starting an airship department once again it seems that some additions to the regulations, or at least to the appendix, will soon be necessary. For instance, will a qualified captain of an airship wear the same "wings" as the pilot of an aeroplane ? Minute instructions are given in the appendix governing the award of the flying badge—to use the official term. They deal only with training on landplanes and seaplanes. Before long, we hope, the regulations for training in airships will also need to be laid down.

FLIGHT

THE ROYAL AIR FORCE

London Gazette, November 25, 1924

General Duties Branch

The following are granted permanent commns. in ranks stated (Nov. 26) :—Squadn. Leader : E. J. P. Burling, D.S.C., D.F.C. Flight Lieuts. : N. L. Desoer, B. K. D. Robertson, A.F.C., A. C. Stevens. Flying Officers : J. S. L. Adams, V. H. Clift.

The following Pilot Officers are promoted to rank of Flying Officer :—V. B. Bennett, C. H. Ratcliffe, R. R. S. Waller (Feb. 16) ; N. Carter (June 20). The following Pilot Officers on probation are confirmed in rank (Oct. 27) :—F. T. Stacey, H. W. Raeburn. Flying Officer P. I. V. Rippon is granted the hony. rank of Flight Lieut. (Oct. 31) ; Squadn. Leader F. E. Sandford, A.F.C., is restored to full pay from half-pay (Nov. 9) ; Flying Officer E. H. Oxley-Boyle is transferred to the Res., Cl. A. (Nov. 26) ; Flying Officer C. F. B. Bassil is placed on the retd. list on account of ill-health (Nov. 25).

The follg. resign their short service commns. (Nov. 26) :—Flying Offr. T. M. Shields, D.F.C., Pilot Offr. B. O. Babb.

Stores Branch

Flight Lieut. R. A. Young is granted a perm. commn. in rank stated (Nov. 26) ; Flying Offr. E. K. Greenhow M.C., takes rank and precedence as if his appt. as Flying Offr. bore date March 5, 1922, reduction to take effect from Oct. 29.

Medical Branch

Flying Offr. C. V. D. Rose is promoted to rank of Flight Lieut. (Nov. 27).

Reserve of Air Force Officers.

Flying Offr. C. J. Clark is employed with the Regular Air Force for a period of two years (Nov. 21). The following Pilot Offrs. are promoted to the rank of Flying Offr. (Nov. 25) :—J. H. C. Wake, E. D. Ayre, A. M. Dunlop, W. L. Woodward.

The following are confirmed in rank :—Flying Officer : G. H. Wenn (Nov. 13). Pilot Officers : H. B. Elwell (Dec. 10, 1923) ; S. B. Atkinson (Nov. 20).

The following are transferred from Class A to Class C :—Flying Officers : W. J. Cooke (Sept. 7) ; C. H. Howitt (Nov. 25) ; T. B. Tully, A.F.C. (Nov. 25). Pilot Officer : H. E. London (Sept. 30).

Memoranda.—The permission granted to the following to retain their ranks is withdrawn on their enlistment in the Army :—Capt. T. C. Angus, D. F. C. (June 30) ; 2nd Lieut. S. R. Durdin (Nov. 1).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

General Duties Branch

Air Commodores :—R. H. Clark-Hall, C.M.G., D.S.O., to H.Q., Egypt, for duty as Chief Staff Officer. 1.12.24. E. A. D. Masterman, C.B., C.M.G., C.B.E., A.F.C., to No. 10 Group H.Q., Lee on Solent., 1.12.24, to command. 5.12.24.

Group Captain R. P. Ross, D.S.O., A.F.C., to H.Q., Coastal Area, for duty as Fleet Aviation Officer on staff of Commander-in-Chief Atlantic Fleet in H.M.S. "Revenge." 14.11.24.

Wing Commander G. C. St. P. de Dombasle, O.B.E., to Station H.Q. Northolt, to command. 1.12.24.

Squadron Leaders :—F. Sowrey, D.S.O., M.C., A.F.C., to R.A.F. Depot, on transfer to Home Estab. 31.10.24. A. T. Williams, to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab. 31.10.24.

Flight Lieutenants :—C. E. H. C. Macpherson, to R.A.F. Depot (Non-effective Sick), on transfer to Home Estab. 1.11.24. C. W. Attwood, to H.Q., Egypt. 1.12.24. G. D. Daly, D.F.C., to No. 100 Sqdn., Spittlegate, on transfer to Home Estab. 1.11.24. C. Boumphrey, D.F.C., to R.A.F. Base, Galshot. 2.12.24. G. E. Ranson, to Armament and Gunnery Sch., Eastchurch. 26.11.24. G. H. Harrison, to R.A.F. Base, Calshot. 2.1.25. K. H. Riversdale-Elliot, L. A. K. Butt, B. A. Malet, D.F.C., and J. W. Young, M.B.E., to Electrical and Wireless Sch., Flowerdown. 1.12.24. D. Price, to Boys' Wing, Cranwell, on transfer to Home Estab. 8.12.24. J. McFarlane, M.C., to R.A.F. Depot (Non-effective Pool), on transfer to Home Estab. 14.11.24.

Sir Samuel Hoare's Hopes. London an Air Junction, or, Is It Terminus ?

RESPONDING to the toast "His Majesty's Ministers," at the annual banquet of the London and Suburban Traders' Federation, on November 24, Sir Samuel Hoare, Secretary of State for Air, said that one of the things that he most desired during his term of office was that he should leave the air defences of London stronger than he now found them. He hoped to see London become the air junction of the world, and all the civil air routes of Europe centring on London. It would be a great advantage to the trade of London if we could expedite and improve our airway communications, particularly with the other parts of the Empire.

Copenhagen Air Conference

ON December 1, an International Air Conference opened in Copenhagen, attended by 35 delegates from Great Britain, France, Germany, Holland, Belgium, Sweden, Norway, Denmark, and Finland. The conference was opened by M. Friis Skotte, Minister of Public Works, who said that the conference was to continue the work of the conference held in Holland last year which established several new European routes The Danish Government were anxious that air-routes should be extended to Denmark. Denmark was anxious that the Copenhagen-Hamburg-Rotterdam air-route should be carried through to London and Paris. He further expressed a desire that Copenhagen-Berlin-Prague and Copenhagen-Gothenburg-Christiania air-routes should be established.

"Thunderstorms and Aviation"

A VERY interesting paper under above title was read before the Royal Aeronautical Society on November 27 by Dr. G. C. Simpson, Director of the Meteorological Office. The lecturer drew a somewhat alarming picture of the forces involved in even a very ordinary thunderstorm, and gave short accounts of actual experiences of aircraft in thunderstorms. He came to the conclusion that in the case of aeroplanes there is probably not much danger from thunderstorms, but that balloons and airships are somewhat differently situated, owing to the presence of inflammable gas. There were, the lecturer stated, three very real dangers to an airship : A direct lightning stroke, ignition of the gas in the balloon owing to an internal spark, and ignition through an external spark of escaping gas. The first of these dangers could be minimised by leaving the upper portion of the hull smooth and without protuberances, in which case lightning would probably strike either the nose or the tail, both fairly far removed from the gas containers. The second danger was a preventible one, and would be attended to by airship designers, while the third danger could be minimised by avoiding sharp metal points or ends of wire on the outside of the hull near the gas valves. The lecturer concluded by stating that he considered the danger from lightning insignificant in comparison with the dangers due to the turbulent motion of the air to which thunderstorms give rise. During the discussion Maj. Scott pointed out that the stresses in airships due to ascending and descending currents depended upon the rate of acceleration, and stated that the new airships now being built were designed to withstand any forces of this nature likely to be encountered. Lieut.-Col. Richmond, who is in charge of the design of the R. 101, stated that experiments carried out in America had shown that internal sparks could be avoided by bonding together with wire the points where sparks were observed to occur.

Sir Sefton Brancker's Air Tour

AIR VICE-MARSHAL SIR SEFTON BRANCKER, Director of Civil Aviation, resumed his flight to India, on the D.H.50, piloted by Alan Cobham, on November 25, when he left the Staaken Aerodrome, near Berlin, for Warsaw. While in Berlin, Sir Sefton held important conferences with the officials of the Air Department, Ministry of Communications, on the question of the conditions of transit for foreign aircraft across Germany. He also visited the new Tempelhofer Aerodrome, which is quite close to the heart of Berlin, and is thus much more suitable as an air port than the present Staaken Aerodrome. The journey from Berlin to Warsaw was successfully accomplished in 4 hrs. 5 mins., and on landing, Sir Sefton was met by the Polish military authorities, M. J. Eberhardt (in charge of communications) and officials of the British Legation, afterwards being entertained to luncheon by the First Aviation Regiment. Sir Sefton conferred with the Polish authorities on various important matters, the following morning. It was intended to resume the flight to Bucharest on November 27, but owing to thick fog in Northern Roumania and a heavy snowfall at Bucharest, Sir Sefton journeyed to the latter place by train, arriving on Monday last. Here he dined with the Crown Prince, and alter discussed air matters with the Roumanian authorities.

Royal Air Force Staff College

THE following Royal Air Force officers, who have passed the necessary qualifying examination, have been selected for the Fourth Course at the Royal Air Force Staff College, which commences on May 4, 1925 :—Wing Commander D. L. Allen, A.F.C. ; Sqdn.-Leaders T. L. Leigh-Mallory, D.S.O. ; C. H. B. Blount, O.B.E., M.C. ; C. H. Nicholas, D.F.C., A.F.C. ; G. C. Bailey, D.S.O. ; E. A. Beulah ; C. E. H. Medhurst, O.B.E., M.C. Flt.-Lieuts. Hon. R. A. Cochrane, A.F.C. ; J. K. Waugh, D.S.C. ; W. F. Anderson, D.S.O., D.F.C. ; T. F. W. Thompson ; A. H. Orlebar, A.F.C. ; W. H. Park, M.C., D.F.C. ; S. E. Toomer, D.F.C. ; R. P. M. Witham, M.C. ; H. P. Lloyd, M.C., D.F.C. ; J. H. Butler ; R. M. Foster, D.F.C. ; S. C. Strafford, D.F.C. ; J. Blackford.

A Ross Smith Statue

A DESIGN for a bronze statue of the late Sir Ross Smith, by Mr. F. B. Hitch, has been selected for the Memorial to be erected in the Civic Gardens at Adelaide. The statue, which shows the famous Australian airman in flying kit, and the marble pedestal will be 24 ft. high. The public has contributed £5,000 towards the cost of this memorial.

ZR3 to Visit England

ACCORDING to an announcement made by Admiral Moffatt, Chief of the U.S. Navy Bureau of Aeronautics, the U.S. Zeppelin ZR3—which was christened "Los Angeles" by Mrs. Coolidge on November 25—will make a trip to England some time next year.

D.H.'s for Foreign Countries

DE HAVILLAND machines have always been looked upon with favour by foreign countries, so it is not surprising to learn that a D.H. 50 (Siddeley "Puma") commercial 'plane has been purchased by the Czechoslovakian Government, and by the time these lines appear in print will probably have been delivered by air by Capt. Broad. Three D.H.'s have also been dispatched to Arabia for service with King Ali of the Hedjaz.

Sydney Air Carnival

A WEEK'S Air Carnival for low-powered aeroplanes opened on November 29 at Richmond, New South Wales, in which some sixteen aeroplanes were down to compete. Half of these have been designed and built in Australia.

A Seaplane Speed Record

ON November 30, at Argenteuil, the French pilot Paumier beat the speed record for seaplanes, held by the U.S.A., by averaging 142 kms. per hour over 100 kms. and 141 kms. per hour over the 200 kms. on a Schreck amphibian (350 Hispano).

A New Speed Record

ON November 29, Adjutant Foiny, flying a Potez 15 AZ (400 Lorraine), broke the world's speed record for 500 kms. with a load of 250 kgs., by attaining a speed of 196·987 km.p.h.—the original record, held by U.S.A., being 120·55 kms.p.h.

By Zeppelin to the North Pole

HERR BRUNS, the German airship commander, has placed before the Norwegian Geographical Society a plan for a Zeppelin cruise to the North Pole. Dr. Nansen has consented to be scientific leader of the expedition, which will probably start in 1927.

Amundsen to Try Once More for the Flight to the Pole

IT is reported from New York that $100,000 has been placed at the disposal of Capt. Roald Amundsen in order that he may make another attempt to reach the North Pole by aeroplane. The flight would be made early next summer, starting from Spitzbergen.

R.38 Memorial Prize, 1924 and 1925

THE Council of the Royal Aeronautical Society have decided that no paper submitted in 1924 for the R.38 Memorial Prize is of sufficient merit to justify an award.

In the circumstances, the Council have decided to award the prize for 1924 to Messrs. C. P. Burgess, J. C. Hunsaker, and S. Truscott, for their paper on "The Strength of Rigid Airships," which was submitted in 1923, and received special mention in that year.

We would draw our readers' attention to the following particulars of the R.38 Memorial Prize for 1925 (third year). From the income of the R.38 Memorial Research Fund, a sum of twenty-five guineas will be offered as a prize for the best paper received by the Royal Aeronautical Society, on some subject of a technical nature in the science of aeronautics. Other things being equal, preference will be given to papers which relate to airships. The prize is open to international competition. The Royal Aeronautical Society retains the right to withhold the prize if it is considered that no paper is of sufficient merit to justify an award.

Intending competitors should send their names to the Secretary of the Royal Aeronautical Society, 7, Albemarle Street, London, W.1, on or before December 31, 1924, with such information in regard to the projected scope of their papers as will enable arrangements to be made for their examination. The closing date for the receipt of papers will be March 31, 1925. Papers, which must be submitted in either French or English, should in all cases be typed, and a copy should be retained by the author, as the Society can take no responsibility for the loss of copies submitted to it. Successful papers will become the absolute property of the Society, and will in most instances be published in the Journal of the Royal Aeronautical Society. A signed undertaking must accompany each paper, to the effect that publication has not already taken place, and that the author will not communicate it elsewhere until the Society's award is published. The Society attaches special importance to papers showing original work, and due acknowledgment must be made by the author of the source of any special information.

"The History of Aeronautics"

WE wish to draw our readers' attention to the announcement appearing in our advertisement columns regarding a new aeronautical book just published by the Oxford University Press, London. This book, "The History of Aeronautics in Great Britain," is by Mr. J. E. Hodgson, Hon. Librarian of the Royal Aeronautical Society, and it tells the story of aeronautics ranging over more than 2,500 years. We hope to refer again to this book in greater detail on a future occasion.

If you are Going to Paris

M. PAUL DELALANDE, London correspondent of our excellent French contemporary, *l'Aéronautique*, wishes us to state that during the Paris Show he will be spending most of his time on the stand of that journal, and that he will be only too glad to render any assistance he can, either in connection with the exhibits or in any other way. If, therefore, any British reader of FLIGHT should have difficulty in the matter of language or in obtaining information relating to any exhibit, he will be well advised to look up M. Delalande on the stand of *l'Aéronautique*.

PUBLICATIONS RECEIVED

Reports: No. 188.—Stresses in Wood Members Subjected to Combined Column and Beam Action. By J. A. Newlin and G. W. Trayer. *No.* 189.—Relation of Fuel-Air Ratio to Engine Performance. By S. W. Sparrow. *No.* 190.—Correcting Horse-Power Measurements to a Standard Temperature. By S. W. Sparrow. *No.* 192.—Charts for Graphical Estimation of Airplane Performance. By W. S. Diehl. *No.* 196.—Comparison of Model Propeller Tests with Airfoil Theory. By W. F. Durand and E. P. Lesley. U.S. National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor
The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1923

Published December 4, 1924

20,022. DORNIER-METALLBAUTEN GES. and C. DORNIER. Flying machine hulls of metal. (224,284.)
20,353. DORNIER-METALLBAUTEN GES. and C. DORNIER. Metal girders of light construction for aircraft. (224,298.)
25,708. A. and S. A. HARPER. Aerial propellers. (224,357.)

APPLIED FOR IN 1924

Published December 4, 1924

528. G. UNGER. Rigid airships. (224,408.)
6,362. G. FORNACA. I.c. engines for aircraft. (224,445.)
6,695. G. FORNACA. I.c. engines with forced feed. (224,448.)
14,390. L. E. REMONDY. Percussion fuzes for aircraft bombs. (218,991.

NOTICE TO ADVERTISERS

All Advertisement Copy and Blocks must be delivered at the Offices of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, not later than 12 o'clock on Saturday in each week for the following week's issue.

FLIGHT

The Aircraft Engineer and Airships

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.
Telegraphic address: Truditur, Westcent, London.
Telephone: Gerrard 1828.

SUBSCRIPTION RATES

"FLIGHT" will be forwarded, post free, at the following rates:—

UNITED KINGDOM	s.	d.	ABROAD*	s.	d.
3 Months, Post Free..	7	7	3 Months, Post Free..	8	3
6 ,, ,, ..	15	2	6 ,, ,, ..	16	6
12 ,, ,, ..	30	4	12 ,, ,, ..	33	0

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates.

* *European subscriptions must be remitted in British currency*

Cheques and Post Office Orders should be made payable to the Proprietors of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, and crossed London County and Westminster Bank, otherwise no responsibility will be accepted.